Nov. 7, 1944. A. O. HOLVECK 2,362,379

DRAINING VALVE FOR DRUM RECEPTACLES

Original Filed May 5, 1942

Fig. 1

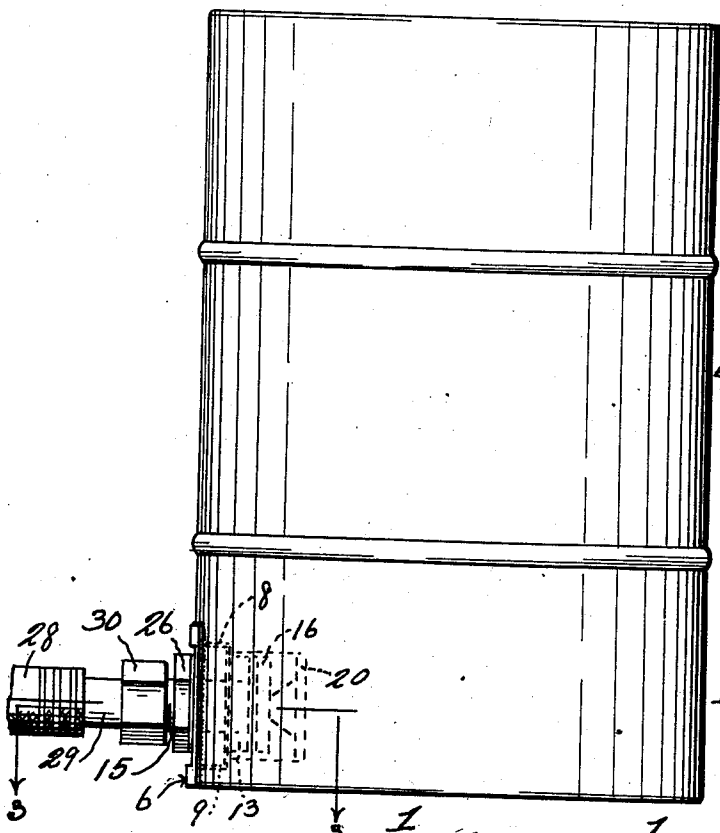


Fig. 2

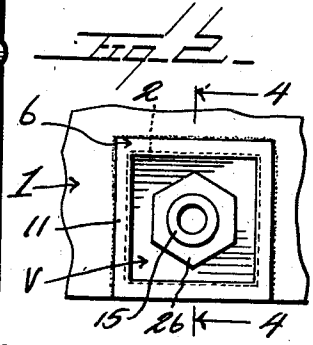


Fig. 3

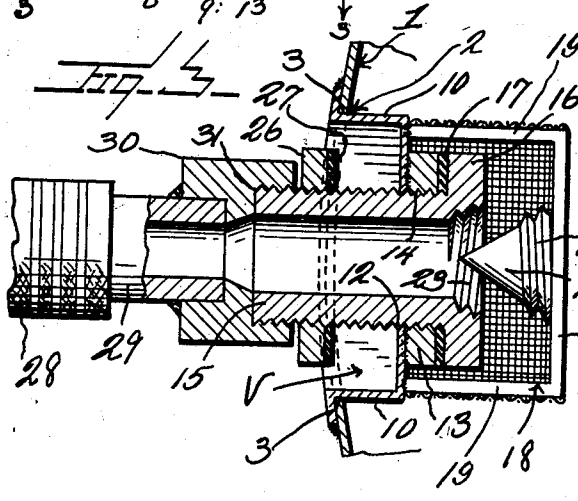
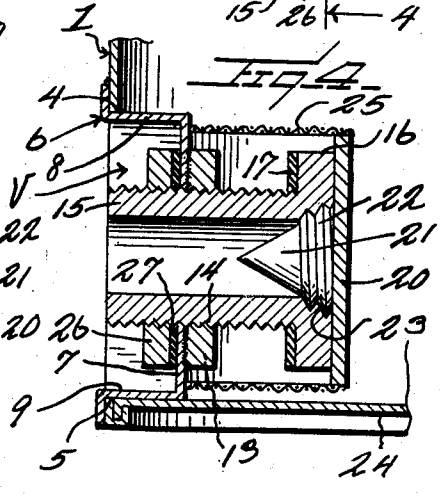


Fig. 4



Inventor

Alpha O. Holveck

By Coleman & Lawson

Attorneys

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DRAINING VALVE FOR DRUM RECEPTACLES

Alpha O. Holveck, Victoria, Tex.

Continuation of application Serial No. 441,837, May 5, 1942. This application December 2, 1943, Serial No. 512,648

4 Claims. (Cl. 222—189)

This invention relates generally to the class of receptacles, and dispensing means therefor, and pertains particularly to receptacles designed to contain fluid or semi-fluid substances from which such substances are withdrawn, either under the action of gravity or by use of a pressure means, through a dispensing nozzle.

In certain types of receptacles such, for example, as drums and cans used for lubricating oils or oils of other types and also other fluids, the dispensing opening is usually located in one head of the receptacle, thus making it necessary that the receptacle be tipped over or mounted on its side upon a suitable rack in order that the contents may be withdrawn.

The present invention has for its principal object to provide a novel means for facilitating the withdrawal of fluid from the bottom part of a barrel or drum or smaller type of receptacle while the receptacle stands upright, the said means facilitating withdrawing all of the receptacle contents without making it necessary to mount the receptacle upon its side as is at present necessary with such receptacles.

Another object of the invention is to provide a novel draw-off means for receptacles of the character stated wherein such draw-off means includes a rotatable portion which, when turned in one direction, opens the draw-off means and when turned in another direction closes the same, the said rotatable portion being designed to have a dispensing hose or nozzle coupled therewith.

Still another object of the invention is to provide a draw-off means of the character stated which is mounted upon the receptacle in a novel manner whereby the receptacle may be rolled or otherwise handled without danger of damaging the draw-off means.

Still another object of the invention is to provide a novel construction which is adapted for ready application for standard types of drums and receptacles, or which may be built into the receptacle when the same is constructed.

The invention will be best understood from a consideration of the following detailed description taken in connection with the accompanying drawing, it being understood, however, that the invention is not to be considered as limited by the specific illustration or description but that such illustration and description constitute a preferred embodiment of the invention.

In the drawing:

Figure 1 is a view in side elevation of a drum or barrel of the type commonly employed for transporting oils and other fluid, showing the present invention applied thereto.

Figure 2 is a view in elevation of the drum attached portion of the invention.

Figure 3 is a horizontal sectional view taken on the line 3—3 of Figure 1.

Figure 4 is a vertical section taken on the line 4—4 of Figure 2.

Referring now more particularly to the drawing, the numeral 1 generally designates a metallic barrel or drum in association with which the present invention is shown but it is to be understood that the use of the invention is not to be confined to receptacles of this type but that the invention may be used upon any fluid containing receptacle where such use is found feasible.

In applying the invention to an already constructed receptacle or drum such as is illustrated, the wall of the drum is cut away at one end to form an opening 2 bordered by the vertical wall portions or edges 3 and the top and bottom edges 4 and 5, respectively. Into this opening 2 there is set a closure member in the form of a plate indicated generally by the numeral 6 which is pressed or otherwise suitably formed to provide the wall 7 which is of rectangular form, and it conforms to the outline of the opening 2, and has the right angularly extending top, bottom and side bordering walls 8, 9 and 10, respectively, which merge at their free edges with the continuous encircling and laterally directed flange 11. The wall 7 is spaced a substantial distance from the plane of the flange 11, thus providing a chamber or vestibule which is designated by the letter V.

The plate 6 closes the opening 2 and the wall portion 7 and the bordering walls integral therewith enter the opening 2, as is shown in Figures 3 and 4, while the flange 11 is positioned against the outer face of the drum and is welded or otherwise suitably secured thereto to form a fluid tight joint therewith.

The central portion of the plate wall 7 is provided with an opening 12 and upon the inner side of the wall 7 is secured a reinforcing centrally apertured plate 13 and this plate has the central aperture thereof screw threaded and the thread is continued through the opening 12 of the wall.

The threaded opening of the plate 13 is indicated by the numeral 14 and this has threaded therethrough the exteriorly threaded sleeve 15 which is of constant diameter from its outer end to the integral collar or flange 16 which is carried upon its inner end upon the inner side of the plate 13.

Encircling the sleeve 15 is a gasket 17 which is compressed between the plate 13 and the collar 16 when the sleeve is threaded to the limit of its outward movement, as shown in Figure 3, whereby to form a leak tight joint between the collar and the plate.

Upon the inner side of the wall 7 there is secured the substantially U-shaped frame, which is indicated as a whole by the numeral 18, and which has the side portions 19 connected by the transverse bar 20 which is parallel with the wall 7 but spaced a substantial distance therefrom by the side portions 19. This frame 18 straddles the collar 16, as shown, and the bar 20 has secured to that side which opposes the wall 7, the conical stopper or plug 21 which is provided with the screw threads 22 around the base portion thereof. This plug 21 is designed to enter the inner end of the sleeve 15 when the latter is threaded inwardly, and the sleeve at its inner end is tapered to receive the plug and is screw threaded, as indicated at 23. When the sleeve 15 is threaded all of the way in, as shown in Figure 4, the plug 21 will be threaded into and will tightly close the end of the sleeve, and the collar 16 will be pressed against the bar 20 and, consequently, the inner end of the sleeve will be tightly closed to prevent fluid passing thereinto from the drum.

When the sleeve is threaded outwardly to the position in which it is shown in Figure 3, it will be readily seen that fluid from within the drum may enter the sleeve to flow outwardly therethrough. In order that any foreign matter which may be in the fluid may be prevented from passing through the sleeve the frame 18, which is horizontally disposed within the drum in close proximity to the bottom 24 thereof, is covered by a straining screen 25.

Upon the outer side of the wall 7 the sleeve has threaded thereon the lock nut 26 and encircling the sleeve and interposed between this nut and the outer side of the wall 7 is a gasket or washer 27. This nut 26 is employed to lock the sleeve against accidental turning when it has been threaded inwardly, as shown in Figure 4, and the gasket 27 which is compressed between the nut and the outer side of the wall 7, prevents leakage of fluid outwardly around the sleeve 15.

It will be noted, upon reference to Figure 4, that when the sleeve is threaded inwardly so that the flow of fluid from the receptacle is cut off, the outer end of this sleeve will be positioned, together with the nut 26 and washer 27, in the vestibule V. Consequently, the drum or receptacle may be rolled or otherwise shifted about without danger of striking the sleeve and causing the joint between the sleeve and the plate 13 to be loosened with resultant leakage.

The threading inwardly and outwardly of the sleeve 15 is accomplished through the medium of the coupling employed for attaching a conduit, such as the hose 28, to the end of the sleeve. This coupling comprises a nipple 29 which has one end extended into and secured to the hose 28 and which has its other end extended into one end of the coupling nut 30. The other end of this nut is interiorly threaded, as indicated at 31, to receive the outer end of the sleeve 15.

In the application of the hose for the opening of the drainage sleeve 15, the nut 26 is first loosened by means of a suitable socket wrench and the coupling nut 30 is then threaded onto the sleeve to form a tight connection therewith. By then turning the coupling nut, hose and nipple, the sleeve 13 may be backed off of the plug 21 and the fluid will then pass directly through the sleeve into the hose. The sleeve can be threaded outwardly until the gasket 17 is compressed between the collar and the plate 13, whereupon a full flow of fluid from the receptacle through the sleeve will result without leakage of the fluid around the sleeve through the plate 13. Shutting off of the flow of fluid through the sleeve is accomplished by reversing the operation described, as will be readily apparent.

As previously stated, while the present invention has been shown applied to a large drum such as is commonly used for transporting oil and other liquids in large quantities, it is to be understood that the invention may be applied to smaller receptacles and may be used in conjunction with receptacles having a means of forcibly ejecting the contents as well as those which have the contents removed by force of gravity. Also, it will be readily apparent that the invention can be readily installed in drums or other receptacles which are already in use as well as being installed in such containers at the time of their construction.

It will be readily apparent that a particular advantage of the present invention resides in the fact that a drainage hose or drain faucet may be applied to the drum or receptacle so that the contents thereof can be drawn off as desired, while the receptacle is filled and without running the risk of losing any of the contents. There are receptacles which are provided with a place to install a faucet after a plug has been removed but the receptacle or drum has to be shifted or placed in a certain position before removing the plug for the insertion of the faucet, otherwise some of the contents will be lost. With the present invention, the faucet or hose can be attached while the outlet is maintained closed, after which the outlet can be opened and the fluid withdrawn as desired.

It is believed to be readily apparent that if desired the plug 21 may be tubular and internally threaded and the coacting end portion of the sleeve 15 suitably formed and exteriorly threaded to allow the plug to thread thereon.

This application is a continuation of application Serial No. 441,837, filed May 5, 1942.

I claim:

1. Drainage means for a receptacle, comprising means forming a portion of a wall of the receptacle and having a threaded opening leading into the receptacle, a tubular sleeve exteriorly threaded through the major portion of its length and engaged in said threaded opening to be shifted axially into and out of the receptacle, a collar upon the inner end of the sleeve adapted to move into opposed relation with said wall forming means, a gasket encircling the sleeve between the collar and the wall forming means, a locking nut threaded upon the sleeve at the outer side of the wall forming means, a gasket encircling the sleeve between the locking nut and the said wall forming means, and a tapered plug supported within the receptacle coaxial with the sleeve in position to enter the inner end of the sleeve when the latter is threaded inwardly a predetermined distance, to close the sleeve.

2. A drum having a circular wall, said wall at one end of the drum being cut away to form an opening, a plate secured in the opening, said plate having a threaded opening therethrough, a frame

secured to the plate within the drum, a tapered plug carried by the frame and directed toward said threaded opening upon the axial center thereof, and exteriorly threaded sleeve threaded through the threaded opening and having its inner end interiorly threaded to receive said plug, a collar integral with the inner end of the sleeve to limit the outward movement of the sleeve, a nut threaded upon the outer end of the sleeve for movement toward the outer side of the plate, and a gasket interposed between the nut and the plate.

3. A structure as set forth in claim 2, including a straining screen covering said frame through which the material in the drum must pass to the sleeve.

4. A drainage means for a receptacle comprising in association with an opening formed in a wall of the receptacle, a plate for closing said opening and having a wall portion bordered by right angularly extending walls, said walls merging with a laterally directed encircling flange, the walls of the plate being introduced into said opening and said flange positioning against the receptacle wall to be secured thereto, said plate wall having a central threaded opening, a sleeve threaded through said opening and having an encircling collar upon the inner end thereof, the outer end of the sleeve being straight throughout, means upon the inner side of said plate wall forming a support in spaced relation with the plate wall, a tapered plug supported on said support coaxial with said sleeve and adapted to enter the inner end of the sleeve when the sleeve is threaded inwardly through the plate wall, said sleeve flange limiting the outward movement of the sleeve, and a locking nut threaded upon the outer end of the sleeve and adapted to engage the outer side of the plate wall to maintain the sleeve in position when it has been threaded inwardly to the limit of its movement and closed by said plug, said plate walls forming a vestibule within which the outer end of the sleeve and said locking nuts are disposed when the sleeve has been shifted to the limit of its movement inwardly.

ALPHA O. HOLVECK.